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Written on February 10, 2016 at 3:33 pm by [Navy Medicine](#)

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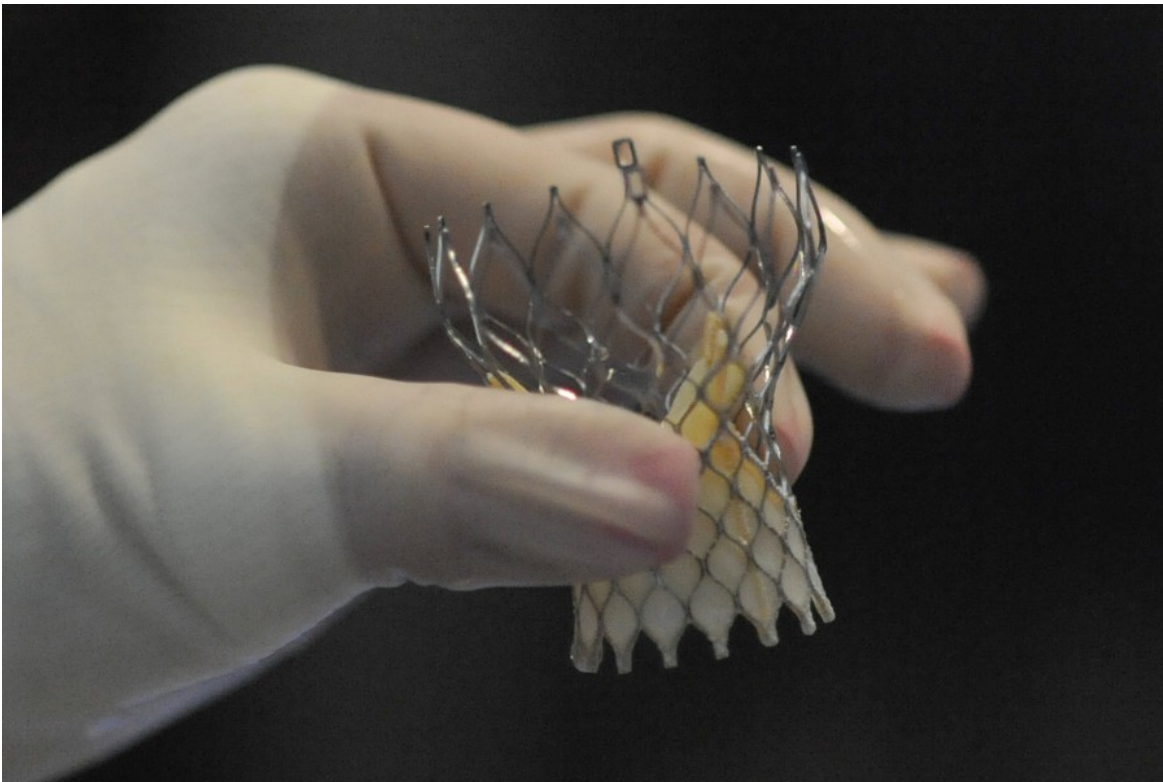
By CAPT Keshav Nayak, MD FACC FSCAI

I was asked by our specialty leader to share news of the recently launched transcatheter aortic valve (TAVR) program at Naval Medical Center San Diego. Thanks to the great efforts of many individuals on our Heart team and highly supportive Directorate and Executive steering council leadership, a 16-person team of cardiologists and surgeons, nurses, and technologists was able to implant the first ever TAVR at an MTF on March 16th, 2015. This historic first is a testimony to the dedication and commitment of the NMCS D Heart team and NMCS D leadership to adopt and implement the latest technologies for our beneficiaries thereby providing life-saving therapies to non-surgical patients. Since March 2015, we have completed 20 successful implants without a single death, myocardial infarction, or major stroke—these are phenomenal clinical results in very sick, or extremely high risk valvular heart disease patient population. Since our first cases, we now partner with the San Diego Veteran's Administration Hospital to perform TAVR with a joint Navy-VA team on their patients while the San Diego VA awaits beginning their own program.



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For those unfamiliar with this therapy, TAVR is a minimally invasive cardiac surgical procedure that has revolutionized the treatment of aortic stenosis, especially in high risk or nonsurgical candidates. Conventional surgical aortic valve replacement (SAVR) is typically an “open heart” procedure which involves arresting the heart and using cardiopulmonary bypass to support the circulation. The aortic valve is accessed through the chest wall, the diseased valve is surgically removed, and a replacement valve is sewn in its place. The Society for Thoracic Surgeons database indicates a typical operative mortality of 2-4% for this procedure, although the risk can be as low as 1% for low risk patients at high volume centers. TAVR is significantly different from SAVR; a replacement aortic valve is mounted on a catheter, typically introduced via the femoral artery, then advanced through the aorta and implanted inside the diseased native valve via self- or balloon-expansion. The valve is composed of bioprosthetic (xenograft pericardium) leaflets sewn to a highly flexible metal alloy frame. Patients are generally awakened and extubated immediately after the procedure and discharged after 2-4 days. The CoreValve US pivotal TAVR trial demonstrated safety and efficacy for the Corevalve self-expanding prosthesis for patients at high surgical risk and those deemed inoperable for SAVR based on extreme surgical risk. In the high risk cohort, survival with Corevalve was superior to SAVR at one year, and at three years the outcomes remained comparable with that of SAVR. Currently, we are using the latest generation Corevalve Evolut R which is a repositionable valve with excellent outcomes to include 1 year 93.3% survival, 3.4% CVA, and 15.2% pacemaker implantation rate.



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Roll out of this innovative program has conferred many benefits for our patients and our Heart team alike. Prior to offering this therapy at NMCS D, our Heart team would often refer Navy patients to nearby civilian hospitals. Now, our patients can avail of this therapy without painstaking transfers, or repeat unnecessary work-ups. Needless to say, our patients much prefer to receive their complex cardiac care by *their* own Navy physicians at *their* Navy hospital. As for the Heart team, there is continued enthusiasm by all members of the TAVR implant team, from echocardiographers to cardiovascular technicians, in being able to participate in this program essentially curing sick patients of their valvular disease without high risk SAVR. You might ask how does having a TAVR program benefit an MTF whose primary mission is to treat the active duty patient. Well, TAVR is ideally suited for wounded warriors who are dependent on assist-devices such as wheelchairs, or amputees who must use their upper-bodies. By using a percutaneous method to fix their valvular disease without open sternotomy, these patients will have the ability to resume full activity far sooner than conventional surgery. Furthermore, valve-in-valve therapy can be used to avoid redo sternotomy in the active duty patient who has a failing bioprosthetic valve.



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In conclusion, TAVR represents a paradigm shift in the fields of interventional cardiology and cardiac surgery, and as such, having the opportunity to launch the TAVR program for our patients at NMCSD has been extremely exciting for our entire Heart team. To be the first TAVR DoD MTF program will remain an everlasting memory!!

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